Problems on Ponca? Case Studies on Recent Cane Dieback

Sara Villani, *Bill Cline, Gina Fernandez and Pierce Lynch, NC State University*

Karen Blaedow, NC Cooperative Extension-Henderson County
Rachel Douglas, NC Cooperative Extension-Haywood County

Reasons for Blackberry Decline

Photo: M. Lewis-Ivey, OSU

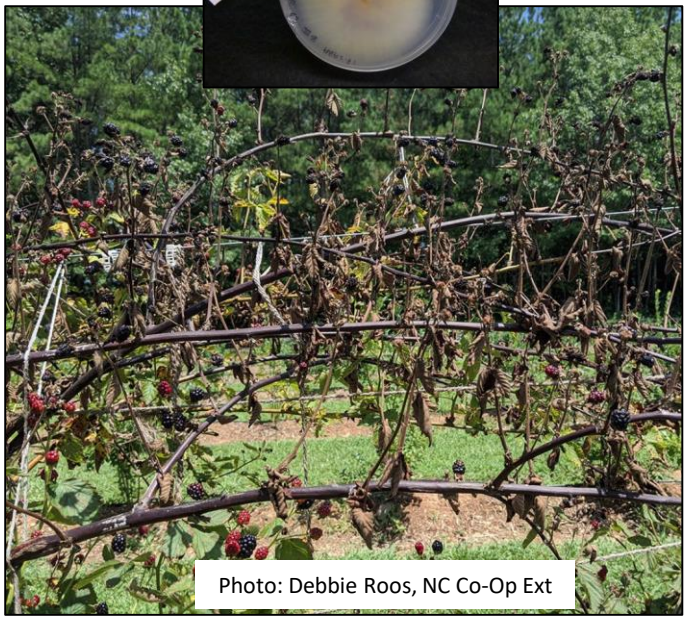


Photo: Debbie Roos, NC Co-Op Ext

Photo: Matt Lenhardt, NC Co-Op Ext

1. Fungal: Vascular colonization or Constriction Canker

Reasons for Blackberry Decline

Brian Olson, Oklahoma State University, Bugwood.org

Photo: B. Bluhm and J. Stover, U. Arkansas

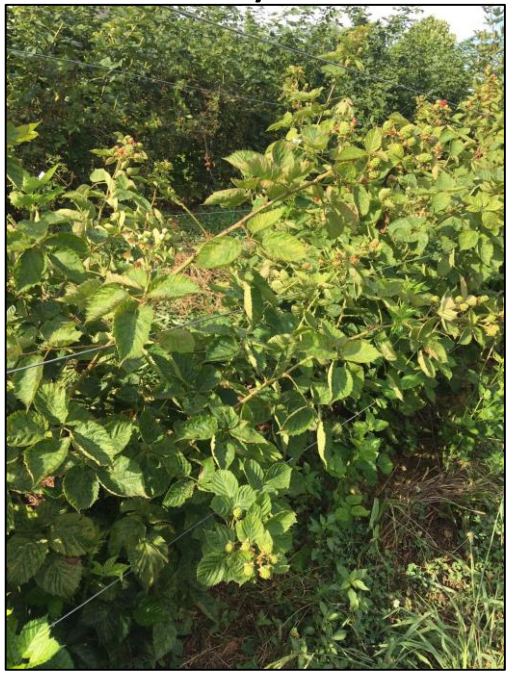
2. Bacterial: Vascular colonization
   - Possible but just not observed frequently

Reasons for Blackberry Decline

blackberry leaf mottle associated virus (BLMaV)

blackberry yellow vein associated virus (BYVaV)
blackberry virus Y (BVY)

3. Viruses: Vascular
   - Over 40 known viruses in blackberry



Reasons for Blackberry Decline

simazine injury

Photo: Marvin Pritts, Cornell University

Photo: Karen Blaedow, NC Co-Op Ext

4. Abiotic Disorders
   - Herbicide injury, nutrient deficiency/excess, environmental stress

winter injury

Photo: Gina Fernandez, NCSU

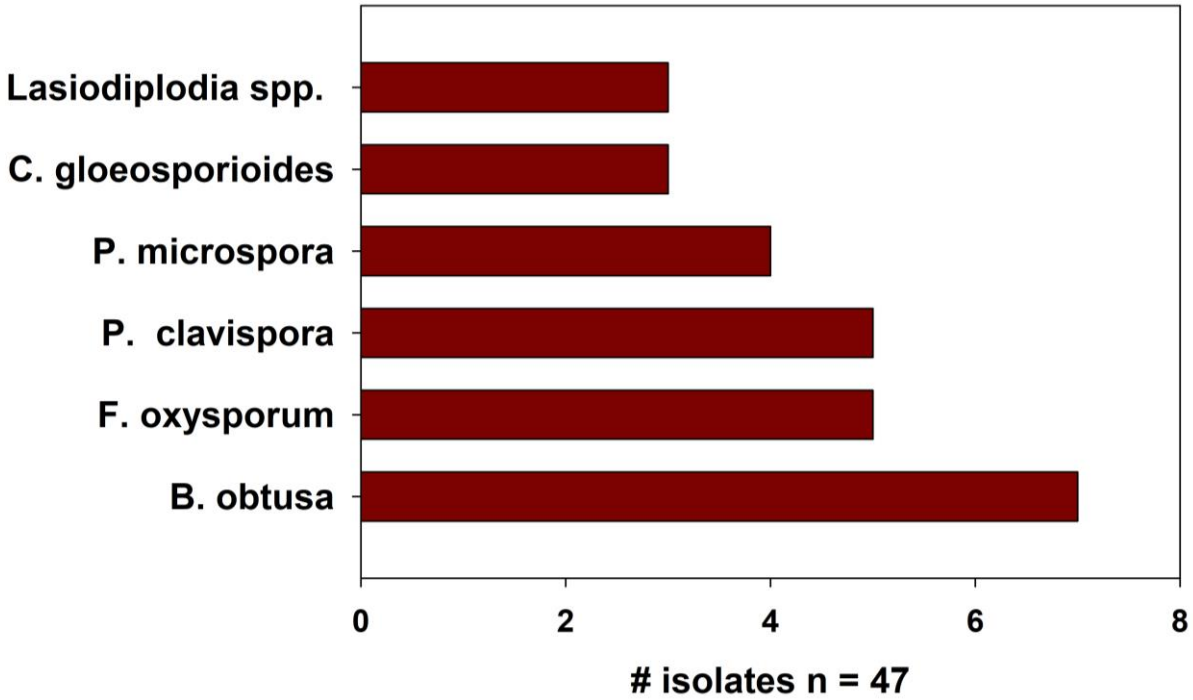
Cane Blight: A Historical Perspective

- Causal Fungus: ***Leptosphaeria coniothyrium***
- Infected floricanes wilt as fruit develops and/or begins to ripen

Photo: D. Becker and N. Gauthier
U of Kentucky

What is Cane Blight?

- **Pathogen: ??? (traditionally *Leptosphaeria coniothyrium*)**



J. Oliver
UGA, 2018

What is Cane Blight?

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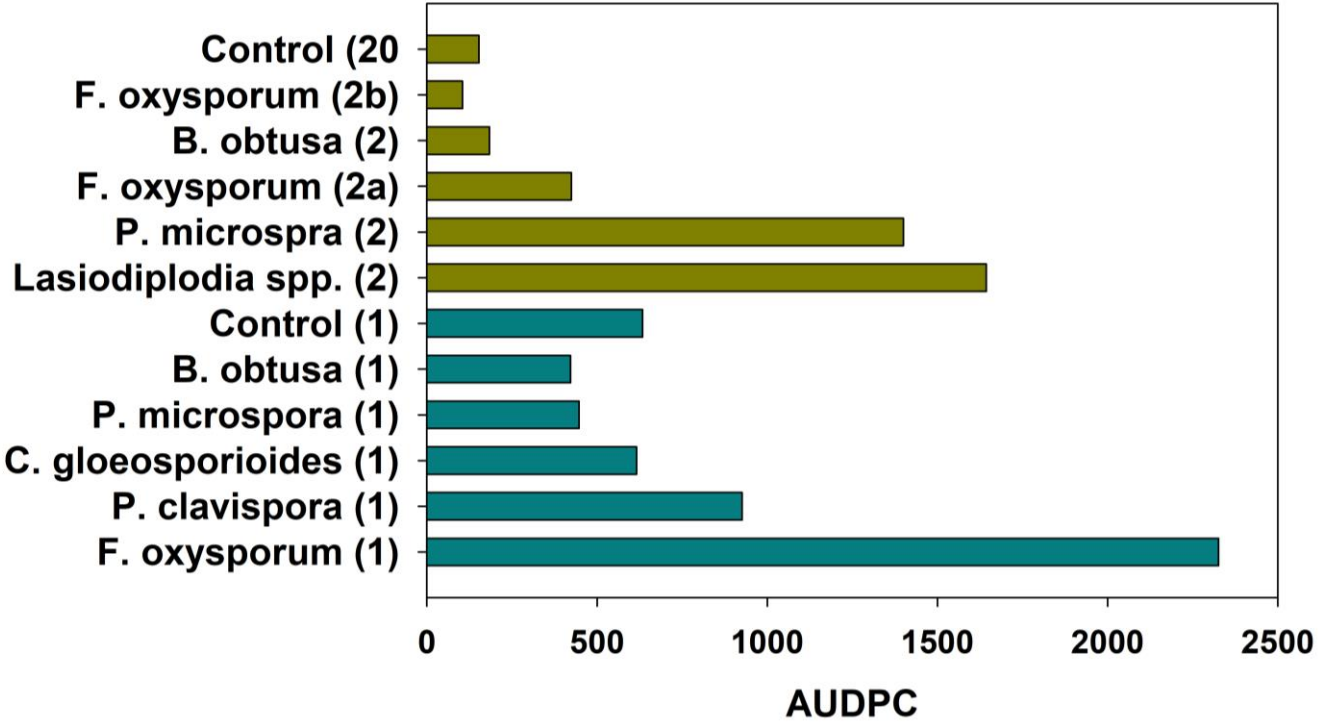


J. Oliver
UGA, 2018-19

Cane Dieback Risk Factors

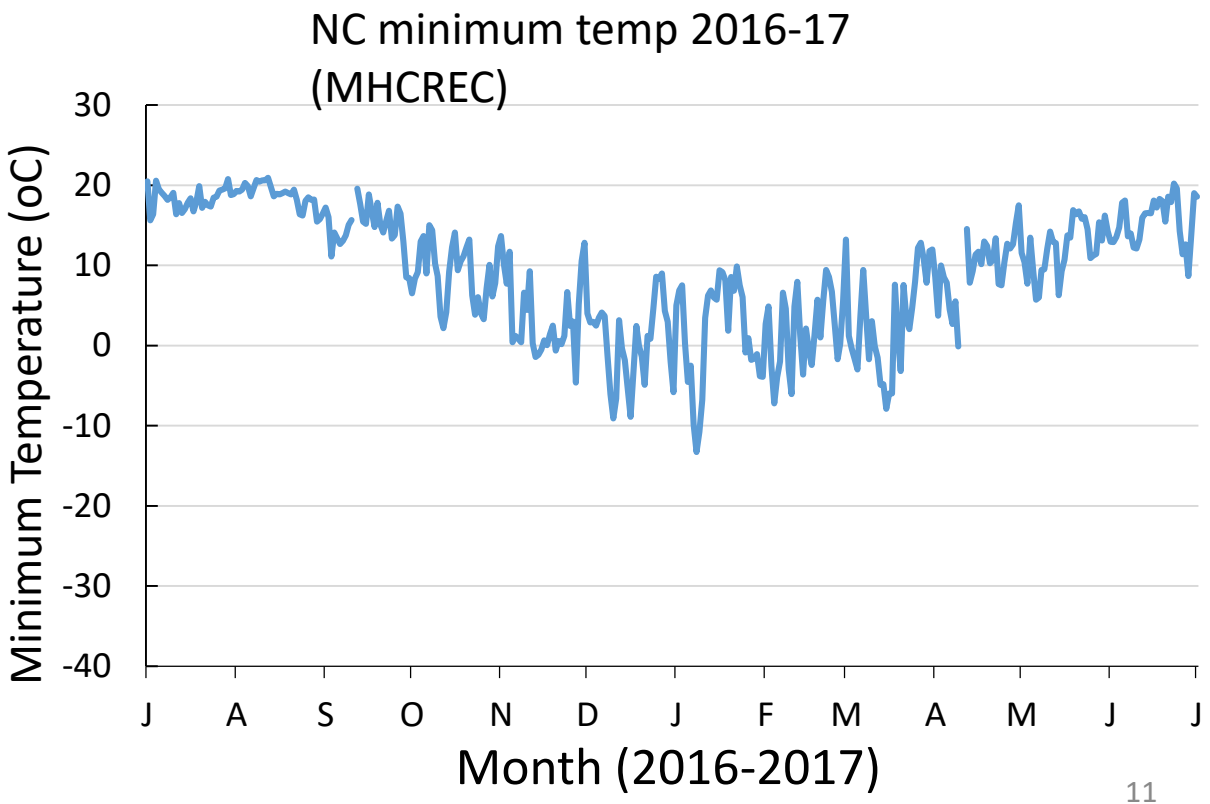
Photo: P. Brannen and G. Krewer
UGA, “Cane Blight of Blackberry”

Hard Tipping

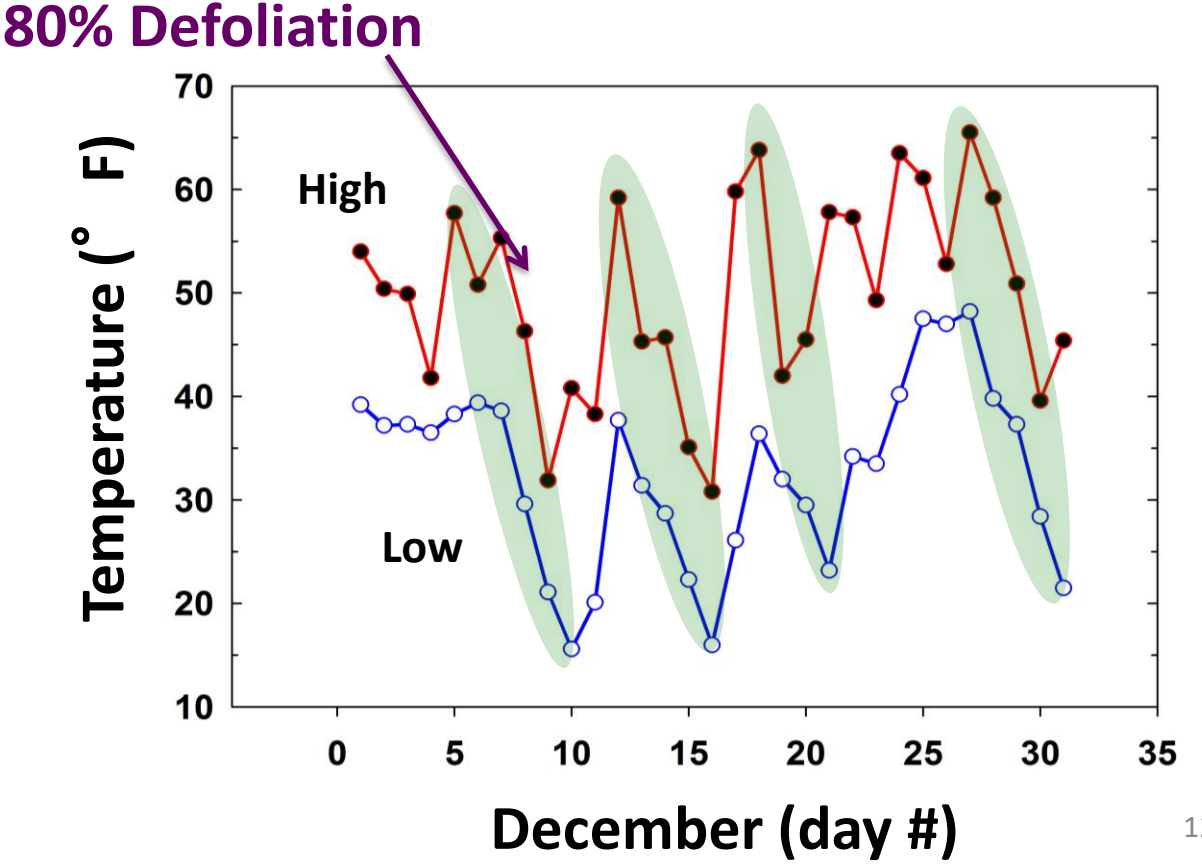
Cane Dieback Risk Factors

Hard Tipping

Cold Damage


NC minimum temp 2016-17
(MHCREC)
Minimum Temperature (oC)
30
20
10
0
-10
-20
-30
-40
J
A
S
O
N
D
J
F
M
A
M
J
J
Month (2016-2017)

Cold Damage


80% Defoliation
High
Low
Temperature (° F)
70
60
50
40
30
20
10
0
5
10
15
20
25
30
35
December (day #)

Problems on Ponca

Scarring on Ponca: Dec. 3, 2021

smvillan@ncsu.edu
to Karen, Gina

Dec 3, 2021, 4:12 PM

Hi Gina and Karen,

[redacted] called me back a week or so ago to take a look at his Ponca planting. They were pruning and noticed his Ponca had scarring/rough wood zone along the buds. Nothing pathogenic was isolated from our lab and it looked superficial to me. Lots of urea was used apparently this spring, no other cultivars are showing the symptoms. Have either of you seen this before or have any idea what could be causing this? Photos attached!

Thanks,
Sara

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Thanks,
Sara

- Symptoms superficial only
- No pathogens /microbes isolated
- Brainstorm: broad mites, interior shading, cold damage, neopestalotiopsis

Scarring on Ponca: April 4, 2022

Karen Blaedow <kebussey@ncsu.edu> Apr 4, 2022, 12:48 PM

to Gina, Sara

Hi Gina and Sara:

I went out at the [redacted] today to look at their Ponca plants and I think we have some cold damage going on, but I am not sure the canes just look terrible and I suspect more than one thing is happening. Perhaps shading of interior in summer, broad mite feeding, weak plants that are maybe more susceptible to cold damage? Sara I know you took samples from [redacted]s Poncas last summer because he thought he had dieback due to a pathogen and you never got anything to grow out of the samples? Would it be possible for us to go to the [redacted] this Friday in the morning to take a look? Would 9AM work for either of you?

Thanks so much

Karen

Persistent Ponca Problems: Mar 1, 2023

Hi All:
Got a call from the [redacted] today and crop consultant from [redacted] went to their field today and told them he thought the problem with the Ponca's was bacterial? They would like me to submit samples to the NC State Disease Clinic as well as UGA and University of Arkansas' Plant Clinics to see what is going on.

Last year we saw lots of issues with Ponca that we determined was Cold Damage. Sara collected samples from both the [redacted] and never found anything.
Bill recently got a new sample of Ponca from [redacted] at our State meeting and is currently isolating from that sample. Any findings Bill?

What do you guys think about this issue? Does it make sense to send a sample to the Disease Clinic in Raleigh and ask them to check for Bacteria? The only bacterial issues I know of in Blackberries are crown gall and fire blight? Since this is a new cultivar I don't want to make assumptions.[redacted]

Thoughts how to proceed?
Karen

Persistent Ponca Problems: Bacterial?

Photos: Hannah Lepsch, NCSU

Photo: A. Schidler

Persistent Ponca Problems: Fungal?

Bill Cline <bcline@ncsu.edu>
to karen_blaedow, Bill, Sara, Gina

Mar 2, 2023, 7:43 AM

Hi all,

The sample from [redacted]s 'Ponca' consisted of a long cane with several necrotic lesions at bud positions. See attached photo. I am consistently getting a slow-growing fungus from the lesions but have not tried to ID it yet, waiting for some sporulation to appear in the cultures (see white colonies in attached pic, sorry for the fuzzy photo). I am on the road this week but will get a look at the cultures later today --

Thanks,
Bill

Persistent Ponca Problems: Mar 8, 2023

Karen Blaedow <kebussey@ncsu.edu>
to Sara, Bill, Gina

Mar 8, 2023, 1:15 PM

Hi All:
I collected dieback samples from [redacted] on Monday and dropped some off at Sara's Lab but I am also going to send a sample to the clinic in Raleigh just to see if they get something from the sample. Bill can I also send you a sample as well?

I did want to update you guys with some photos I took at [redacted] on Monday, March 6th with the bud dieback symptoms. Pretty much the whole field looks like this. I also looked at Ponca's at Larry Stepps place on Tuesday, March 7th and have included photos of his place as well. He does have that scaring we see below the petiole but his buds are not dying back. Larry feeds most of his Nitrogen in the Spring through May and backs off during the first of June--not sure if this is helping with dormancy? He also only has two rows, wher[redacted]Larry also sprays lime-sulfur in the winter and gives the plants some potassium sulfate throught the drip in the fall.

Persistent Ponca Problems: Mar 8, 2023

Persistent Ponca Problems: Mar 8, 2023

Persistent Ponca Problems: Jul 5, 2023

John R. Clark <jrclark@uark.edu>
to Gina, Tom, Karen, Sara, Bill, Margaret, Carmen

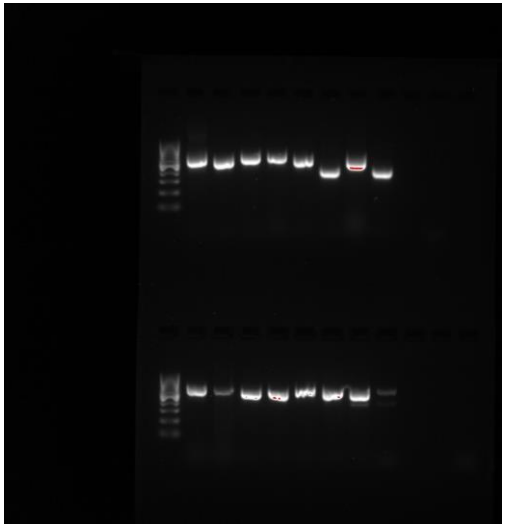
Wed, Jul 5, 2023, 11:11 AM

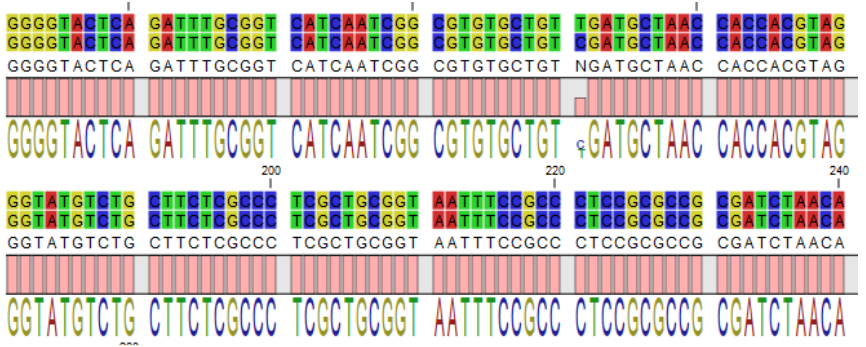
Colleagues:
Thanks for including me on this message and thread. Remember Ponca has a unique cane architecture, short internodes, but the nodes themselves and petiole attachment has a different look, and morphology, than other bks that are in the public market. The tighter leaves produce a much more dense canopy and thus microclimate, up and down the stem. Then the strong leaf retention tendency likely adds to this for a longer period than more open-node bks – like all the ones on the market. This is something to watch. This architecture could contribute to this spur blight development, it sure would not surprise me.

I think so much of what we see is related to stress of one sort or the other. The stress of lack of chill in south Ga looks to be strong, and additive, over the years. That plus heat plus mid-winter cold, plus spring frost, plus heat plus rain..well this list goes on and on. Farmers are sure brave, or crazy, or both it seems. jrc

Persistent Ponca Problems: Aug 15, 2023

An Anticlimactic Ending…





Persistent Ponca Problems: Aug 15, 2023

Fungi That Cause Cane Cankers on Thornless Blackberry in Ohio

M. A. ELLIS, Associate Professor, G. A. KUTER, Senior Researcher, and L. L. WILSON, Agricultural Technician I, Department of Plant Pathology, Ohio Agricultural Research and Development Center, Ohio State University, Wooster 44691

Gnomonia rostellata (Fr.) Wehm., the pathogen of cultivated blackberry plants (_Rubus fruticosus_ L., agg.)

Gnomonia rostellata (Fr.) Wehm., ein Pathogen an Kultur-Brombeeren (_Rubus fruticosus_ L., agg.)

M. Arsenijević[1], M. Veselić[2]
[1] Institute for Plant Protection, Faculty of Agriculture, Trg D. Obradovića 8, 21000 Novi Sad, Yugoslavia
[2] Department for Agriculture, 15000 Šabac, Yugoslavia

What Can You Do Now?

- Pinch tipping vs hard cuts in summer
- Fungicide applications after summer/fall pruning
- Cut floricanes ASAP and remove from planting (2nd best-chop up/mulch into row middles)
- Maintain practices which lessen winter injury-N timing in particular
- Induce defoliation sooner?
- Late dormant lime sulfur applications

Thanks and Questions

- John Clark and Mike Schwartz